Final Approved

Butler's Gartersnake Conservation Plan

MERIDIAN GERMANTOWN LLC - WAL-MART PROJECT

VILLAGE OF GERMANTOWN
WASHINGTON COUNTY, WISCONSIN

(Revised) July 18, 2005

NRC Project # 03-180

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1. Background

A retail development including roads, parking lot and other supporting infrastructure is proposed for a location southwest of State Highway 175 (STH 175) in the Village of Germantown, Washington County, Wisconsin (Figures 1 and 2). An adjacent land easement from We Energies to the southwest of the property is to be incorporated in the development plan and mitigation plan. The state threatened Butler's Gartersnake (*Thamnophis butleri*) is present on a portion of the project site and the Wisconsin Department of Natural Resources (WDNR) has determined that the proposed project will likely result in a taking of this species. The law allows the WDNR to authorize the "taking" of individuals of a listed species that otherwise is prohibited by the law if the following conditions apply:

a) The taking will not be the purpose of, but will only be incidental to, the carrying out of a lawful activity.

b) The party requesting taking authorization will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking.

c) The taking will not appreciably reduce the likelihood of the survival or recovery of the endangered species or threatened species within the state, the whole plant-animal community of which it is a part, or the habitat that is critical to its existence.

d) The benefit to public health, safety or welfare justifies the activity.

This Butler's Gartersnake Conservation Plan was developed to minimize and mitigate the proposed taking, and includes a long-term commitment to protection and maintenance of specified areas of habitat for this species.

This document contains locational information for the state-threatened Butler's gartersnake and the Site(s) of Significant Conservation Value (Tier 3 site). As such, this information is not available for public viewing because it contains the location of sensitive Natural Heritage Inventory Data that are exempt from the Wisconsin Open Records Law (s. 23.27 (3)(b) Stats.)."

2. Existing Site Conditions

The portions of the subject property that contain Butler's Gartersnake habitat include the sections immediately north and south (including the land easement) of the proposed retail development (Figure 3). The northern section of the property currently consists of a wetland that contains a man-made pond surrounded by original dredge spoils. The area around this pond consists of an actively maintained residential lawn. The southwestern section of the property is a low quality wet meadow/shrub-carr formed in a relatively flat depressional area. The wetland has low floristic quality and diversity. It is dominated by a monotypic stand of reed canary grass but also contains shrub-carr areas and an existing shallow marsh dominated by cattails. A small, unnamed tributary to the Menomonee River begins in this wetland and flows northeast off the property. Due to its linear appearance, it was likely subject to straightening or channelizing. The southeastern portion of the property contains a wooded wetland (not included in the conservation plan), and the remainder of the property, on which

the retail development will be built, consists of an actively farmed field, several residential lots and a tree/shrub line separating the residential yards from the agricultural field. The enclosed photographs provide a visual reference of the existing site conditions and snake habitat quality (Photographs 1 - 23).

3. Snake Habitat Evaluation

During the spring of 2005 the project area was evaluated by a WDNR biologist and a biological consultant on separate occasions for suitability to support Butler's Gartersnakes. These independent evaluations were conducted by means of a meander survey, a review of available Butler's Gartersnake distribution data, and an evaluation of the taxonomic status of this species within the geographic area. In addition, a Butler's Gartersnake presence/absence survey was conducted during the spring of 2002 within a portion of the subject project area as part of a previous utility project. This snake survey resulted in the capture and identification of one *Thamnophis butleri* and the survey was terminated because presence was confirmed. A follow-up survey is currently being conducted by the WDNR and preliminary results indicate additional occurrences of Butler's Gartersnakes on the subject property.

As a result of the project site evaluation, the most suitable snake habitat is associated with the wetlands to the southwest and north of the proposed retail development. Based on the WDNR's current Butler's Gartersnake Conservation Strategy for Tier III Sites the majority of habitat on the property was classified as moderate - low quality.

Butler's Gartersnake distribution data and an evaluation of the taxonomic status of this species within the local geographic area revealed known populations of Butler's Gartersnakes within and in close proximity to the subject property. Figure 3 outlines the approximate area of the Tier 3 Habitat Patch; portrays the area identified as potential snake habitat on the subject property and illustrates the proposed habitat protection areas. The entire Tier 3 habitat patch is approximately 33.25 acres in size. The current snake habitat area within the limits of the project, including uplands and wetlands, is estimated to be 10.56 acres (10.41 acres wetland and 0.15 acres upland).

4. Estimated Impacts & Project Benefits

The proposed development plan includes the new retail store and associated stormwater detention, landscaping, access, parking, and delivery areas on the property. It also includes an extension of Maple Drive and the construction of a right-hand only turn lane on STH 175. Additionally, a sanitary sewer pipeline will be constructed through the southwestern wetland area. The total wetland area impacted by the sewer pipeline is 2.26 acres, and 0.335 acres of wetland will be filled for construction of Maple Drive and the right-hand only turn lane. However, once constructed, the sewer line disturbance area will be restored and maintained as part of the snake habitat management area. The total area to be designated for snake habitat once the project and restoration activities are completed is approximately 16.39 acres (11.47 acres wetland and 4.92 acres upland) of high quality habitat (Figure 3).

To mitigate for the wetland losses, 1.06 acres of wetland will be created on the property. This will result in a net increase of 0.725 acres of new wetland habitat for the snakes. Some of the wetland creation will occur on the northern portion of the property, which will be connected to the wetland on the southern portion of the property by an upland prairie restoration buffer along the west side of the property (Figure 4) and a snake passage culvert beneath the Maple Drive extension (Figures 4 and 5).

The plan will include the enhancement of remaining wetland and upland snake habitat within the project limits that is currently of moderate to poor quality (based on the definitions used in the WDNR's current Butler's Gartersnake Conservation Strategy), while accomplishing the proposed retail development project. The plan will include the enhancement of 10.41 acres of the existing wetland and the restoration of 4.92 acres of upland habitat to short grass-dominated prairie. Furthermore, this conservation plan will establish a contiguous upland habitat corridor between the northern and southern Butler Gartersnake habitats on the property.

5. Implementation Requirements

The following required actions will be implemented to minimize and mitigate for potential impacts to Butler's Gartersnakes resulting from the proposed development project described above. ***This plan requires a conservation easement with the Wisconsin Department of Natural Resources for all areas designated in this plan as Butler's gartersnake habitat.***

5.1 Minimizing Take

Reduction of take will be accomplished by excluding snakes from construction areas. Trenched-in (barrier) fencing was installed on April 6, 2005 to exclude snakes from occupying habitat located within the construction footprint. Snakes typically move down-slope into wetlands for winter hibernation. The location of Seasonal Isolation Fencing for this project is shown in Figure 2. Normally, this fencing should be installed between November 1 and March 15 prior to construction. However, due to seasonal weather conditions during 2005 the WDNR extended the fence installation deadline to April 7th, 2005. Construction may then begin upslope of this fence without concern for snake mortality. For added insurance, orange construction fence will be installed prior to construction activities immediately upslope from the silt fence to aid in keeping contractors from damaging the isolation fencing during construction.

In addition, the new sewer line corridor must have isolation fence installed prior to sewer construction to prevent snake from entering the corridor if the entire sewer construction and regrading does not occur during the snake's inactive period (November 5 through March 15).

Standard trenched-in sediment fencing was used and the support stakes are positioned on the upslope side of the fencing material to reduce the risk of snakes climbing the fence. The fence skirt was buried a minimum of 4 inches into the soil as snakes can push under even small openings and/or loose flaps. Soil was backfilled into the trench and compacted. Where two fabric sections meet, the two end stakes were wrapped around each other so that there is no gap between the end stakes. The fence will be inspected twice each week on non-consecutive days (approximately every 3 days), and after rain events. Repairs will be made to any fencing failures within 24 hours. Fences do not need to be maintained between November 2 and March 14, while the snakes are inactive and underground. However, the fence will be maintained (outside of this time period) until all earth-moving operations and final site stabilization associated with the project is complete.

5.2 Mitigation

Snake population protection and recovery will be improved by new habitat creation and post-construction habitat recovery and enhancement. Butler's Gartersnakes prefer relatively open canopy habitats including savannas, grasslands, sedge meadows, marshes and shrub wetlands. The following snake habitat restoration plan has been developed to restore designated areas to native plant communities by a combination of seeding, planting, monitoring and management. The primary elements of the plan include site preparation, seeding and planting, and long-term management commitments (as long as the Butler's Gartersnake remains a listed species). Long-term management will involve establishing a habitat evaluation protocol and will include seasonal and technical constraints on the use of burning, herbicide application, and mowing for maintaining Butler's Gartersnake habitat.

Objectives of this plan are to improve and protect habitat for the Butler's Gartersnake in the designated management area of the proposed development project and the We Energies land easement. The primary goal of the snake management plan is to develop and manage both wetland and upland snake habitat and the connectivity between snake habitat with a diverse native plant community of grasses and forbs. In addition, the snake passage culvert has been designed to allow favorable snake passage under the Maple Road extension through the wetland, thereby allowing for continued connectivity of snake habitat (Figure 5). These goals will be accomplished by creating and/or restoring wetland and upland habitat, planting native vegetation communities, controlling invasive plant species, and long-term management of the site to maintain preferred plant communities.

There are five general areas within the snake habitat management area which will be enhanced and/or restored (Figure 4). Area 1 is located in the northern portion of the property and includes the man-made pond. Area 2 incorporates three wetland creation areas. One is located in the southeast portion of the property bordering the treeline; the second is located just south of the proposed retail store; and the third runs north-south near the southwestern property boundary. Area 3 encompasses most of the existing wetland area on the southern portion of the property. Area 4 includes 5 upland (vegetative buffer) areas found throughout the property. Area 5 includes the proposed sanitary sewer line, which cuts diagonally across the wetland on the southern portion of the property.

Area 1

This area currently includes the man-made pond with associated dredge spoils in the northern portion of the property. Wetland creation activities in this area include a combination of grading, herbicide application, seeding, and monitoring and management. Recommended activities during the first year include grading the area, seeding with a cover crop, and treating with appropriate erosion control measures. Glyphosate herbicide will be applied periodically throughout the growing season. In the fall, the Complete Wetland Mix (grasses, sedges, and forbs) will be seeded (see Table 1 for species list). During the following five years, the area will be monitored for erosion damage, invasive species, and native species establishment. Invasive species will be selectively treated by spot-spraying with a glyphosate herbicide. Replanting using the approved wetland seed mix will be done where invasive species have been treated.

Area 2

Area 2 consists of three separate wetlands found within the project area. They are all currently farmed wetland or wetland borders. All areas will receive the same wetland creation/ restoration treatments except that Area 2 in the southwest portion of the property near the Maple Drive extension road will also need grading prior to other treatment. During the construction year, these areas will all be seeded with a cover crop and appropriate erosion control measures will be taken. The area will be treated periodically with glyphosate herbicide during the growing season, and the cover crop will be reseeded as necessary. In the fall, a Sedge and Forb Wetland Mix (Table 1) will be seeded throughout these areas. The following year, the areas will be treated with Vantage herbicide if necessary, and then the Grass Wetland Mix will be seeded in the fall. Invasive species will be spot-sprayed with glyphosate herbicide and the site will be monitored for at least five years following the construction year. Replanting using the approved wetland seed mix will be done where invasive species have been treated.

Area 3

This area includes wetland enhancement in the existing wetland on the southwestern portion of the property. This wetland currently consists of degraded wet meadow dominated by reed canary grass, an area of shallow marsh dominated by cattails, and several patches of shrub-carr vegetation, dominated by willows and red-osier dogwood. The wetland enhancement will be divided into two sections (Phase 1 and Phase 2) with initial restoration occurring in the Phase 1 portion of the wetland (Figure 4). The Phase 1 area will be treated to eradicate reed canary grass, cattail, and giant reed grass using a combination of mowing and herbicide treatments. Once the invasive species cover comprises less than five percent cover of the entire Phase 1 enhancement area, the site will be re-vegetated. The Phase 2 wetland enhancement will mimic the Phase 1 procedure and will occur once Phase 1 is deemed acceptable by the WDNR and monitoring efforts indicate that Butler's Gartersnakes are occupying the restored area. Mowing of reed canary grass within the Phase 2 area will occur during the Phase 1 process in order to minimize the production of new reed canary grass seed.

Recommended enhancement activities during the construction year include mowing and then treating the existing Phase 1 herbaceous vegetation with a glyphosate herbicide periodically throughout the growing season. Shrubs will be avoided during these activities. During the year following construction, all Phase 1 herbaceous vegetation will again be periodically treated with glyphosate herbicide. The Sedge and Forb Wetland Mix will be seeded in the fall. The Complete Shallow Marsh Mix (Table 2) will be seeded in the shallow marsh area at the same time. Shrubs will be planted the following spring (the second year after construction). During the second year following construction, the wet meadow area will be treated with Vantage herbicide if necessary, avoiding the shrubs and open water. The Grass Wetland Mix will be planted that fall. Long-term monitoring, performance standards and management are discussed in Section 5.5.

A snake passage culvert is proposed within this area beneath the Maple Drive extension road (Figure4). This culvert was designed to allow continued snake passage and was approved by the WDNR (Figure 5). Once the culvert is installed and vegetation on either side of the Maple Road extension is re-established the effectiveness of this snake passage devise will be monitored. The specific monitoring methodology will be developed in consultation with the WDNR and will likely involve the use of funnel traps within the entrance of the culvert.

Area 4

This area includes several upland areas on the property, which will be restored to prairie and will act as a vegetative buffer to the wetland. The upland buffer will be planted with a mesic prairie mix in the areas currently vegetated with non-native species or weeds. A seed cover crop will be planted during the construction year, and the areas will be mowed as necessary. Erosion and compaction issues will be addressed at the end of the construction period, and a Prairie Mix (Table 3) will be planted that fall. During the following years, monitoring and management will include mowing (if necessary for weed control) and spot-spraying of herbicide on invasive species. Replanting using the approved wetland seed mix will be done where invasive species have been treated. Exceptions to this plane include not modifying an area of Kentucky blue grass currently found along the western edge of Area 4, except where it may be impacted by the sewer line installation, and that the southern undisturbed upland habitat area along Hwy. Q will only be enhanced by herbiciding the shrub component to reduce shrub density in this area

Area 5

This is the area which will be impacted by the construction of the sanitary sewer. The sewer pipeline will run diagonally through the wetland from the Maple Drive extension road to the retail store/ parking lot area. Construction activities will include both open trench and directional drilling. Directional drilling will be used in the middle portion of the sewer pipeline to avoid existing gas pipelines, which run north-south through that area of the wetland. When construction in this area is completed, the area will be restored using a combination of grading, seeding, herbicide treatment, monitoring and management. Grading will be done when the construction activities conclude. Herbicide will be applied following construction for two years. The Sedge and Forb Wetland Mix will be planted during the fall of the first year after construction, and Vantage herbicide will be applied two years after construction, after which the Grass Wetland Mix will be seeded. Monitoring and management of this area will include spot-spraying invasive species for five years. Replanting using the approved wetland seed mix will be done where invasive species have been treated.

5.3 Conservation Plan Schedule

Initial habitat restoration within the conservation plan area is scheduled to begin during the fall of 2006 depending on construction progress. Grading, seedbed preparation, herbicide treatments, and seeding with cover crops and/ or seed mixes will be implemented where appropriate according to the Wetland Compensatory Mitigation Site Plan (Appendix A). Activities will be carried out according to the plan's schedule for a period that extends five years beyond the initial restoration for each of the five areas identified in this plan. Depending on the area, Seed Mixes will generally be planted in the fall of construction year or the following fall. Some areas, with heavy reed canary grass invasion, will be planted first with the Sedge and Forb Wetland Mix, then sprayed with a grass-specific herbicide (Vantage), and then planted with the Grass Wetland Mix. Over the course of the plan, restoration and enhancement activities will be monitored for erosion damage, invasive species, and native species establishment, and corrective actions will be implemented accordingly. In addition, spot-spraying of invasive species with glyphosate herbicide will occur in all areas for five years following initial restoration of each of the five areas identified in this plan. During the last year of the monitoring, wetland delineations will be performed on the property and the restoration projects will be evaluated to determine if they meet performance standards. Using the information gathered over the five years of monitoring, the wetland delineations, and the

evaluations, a long-term management plan will be developed. One aspect of the long-term management plan will include annual mowing of all upland snake habitat during the snake's inactive period (November 1-March 15) in perpetuity unless the Butler's gartersnake is removed from the endangered and threatened species list because it has been determined not to be a valid species.

Construction activities are also expected to begin during summer 2005. The trenched-in snake barrier sediment fencing was installed around the perimeter of on-site wetlands on April 6, 2005. All snake exclusion fencing must be monitored during the snake's active period (March 16-October 31) at least twice weekly on non-consecutive days. Repairs must be made within 24 hours. Fences do not need to be maintained between November 1 and March 15, while snakes are inactive and underground. Fences must be maintained (outside of the wintering period) until all earth-moving operations and final stabilization associated with the project is complete.

5.4 Habitat Monitoring, Performance Standards and Management

Designated snake habitat areas will be monitored annually for five years following the initial restoration activities for each of the five areas identified in this plan using a qualitative meander method to determine the presence and relative abundance of invasive and nuisance plant species. There needs to be less than 35% of the snake habitat cover comprised of the following invasive/nuisance species: reed canary grass, common reed, cattail, stinging nettle, and purple loosestrife. At least 65% of the snake cover should be non-invasive species. If invasive/nuisance species comprise less than 35% of the snake habitat after five years then monitoring can be reduced to once every three years. If such species comprise more than 35% of the snake habitat after five years, then continued treatment and annual monitoring will be performed until the target goals are achieved.

Annual mowing of all upland snake habitat will be required during the snake's inactive period (November 1-March 15) in perpetuity unless the Butler's gartersnake is removed from the endangered and threatened species list because it has been determined not to be a valid species.

5.5 Seed Mixes

The following seed mixes are recommended for seeding in the wetland and upland areas requiring restoration.

TABLE 1

Wet Meadow Seed Mix

(Apply at 7 lbs./acre)

Scientific Name	**Common Name**
Grasses	
Bromus ciliatus	Fringed Brome
Calamagrostis canadensis	Canada Bluejoint Grass
Glyceria striata	Fowl Mana Grass

Leersia oryzoides	Rice Cut Grass
Poa palustris	Marsh Bluegrass
Spartina pectinata	Prairie Cordgrass
Sedges	
Carex bebbii	Bebb's Sedge
Carex comosa	Bristly Sedge
Carex hystericina	Bottlebrush Sedge
Carex stipata	Common Fox Sedge
Carex stricta	Tussock Sedge
Carex vulpinoidea	Brown Fox Sedge
Juncus effusus	Common Rush
Juncus torreyi	Torrey's Rush
Schoenoplectus tabernaemontani	Soft-stem Bulrush
Scirpus atrovirens	Dark Green Bulrush
Scirpus cyperinus	Wool-grass
Forbs (at least ten of the following)	
Asclepias incarnata	Marsh Milkweed
Aster lanceolatus (A. simplex)	Eastern Lined Aster
Aster novae-angliae	New England Aster
Cassia hebecarpa	Wild Senna
Eupatorium maculatum	Spotted Joe Pye Weed
Eupatorium perfoliatum	Boneset
Euthamia graminifolia	Grass-leaved Goldenrod
Helenium autumnale	Sneezeweed
Helianthus grosseserratus	Sawtooth Sunflower

Lycopus americanus	Water Horehound
Penthorum sedoides	Ditch Stonecrop
Pycnanthemum virginianum	Mountain Mint
Rudbeckia subtomentosa	Sweet Black Eyed Susan
Solidago ohioensis	Ohio Goldenrod
Solidago riddellii	Riddell's Goldenrod
Thalictrum dasycarpum	Meadow Rue
Verbena hastata	Blue Vervain
Nurse Crop	
Elymus canadensis	Canada Wild Rye
Echinocloa crusgallii	Barnyard Grass

TABLE 2

Shallow Marsh Seed Mix

(Apply at 7 lbs./acre)

Scientific Name	**Common Name**
Graminoids (at least 6 of the following)	
Carex aquatilis	Water Sedge
Carex lacustris	Lake Sedge
Eleocharis acicularis	Least Spikerush
Glyceria grandis	American Mannagrass
Iris versicolor	Common Iris
Juncus effusus	Soft Rush
Schoenoplectus tabernaemontani	Soft-stem Bulrush
Scirpus fluviatilis	River Bulrush

Sparganium eurycarpum	Giant Bur-reed
Forbs	
Acorus calamus	Sweet Flag
Alisma subcordatum	Water Plantain
Asclepias incarnata	Marsh Milkweed
Polygonum amphibium	Water Smartweed
Saggitaria latifolia	Common Arrowhead

TABLE 3

Prairie Seed Mix

(Apply at 10 lbs./acre)

Scientific Name	**Common Name**
Graminoids	
Andropogon gerardii	Little Bluestem
Festuca obtusa	Nodding Fescue
Poa pratensis	Kentucky Bluegrass
Sporoblus heterolepis	Prairie Dropseed
Sedges	
Carex bebbii	Bebb's Sedge
Carex prairea	Prairie Sedge
Carex vulpinoidea	Brown Fox Sedge
Forbs	
Aster laevis	Smooth Blue Aster
Aster azureus	Sky Blue Aster
Eryngium yuccifolium	Rattlesnake Master
Helianthus occidentalis	Western Sunflower
Liatris pycnostachya	Prairie Blazing Star
Monarda fistulosa	Wild Bergamot
Ratibida pinnata	Yellow Coneflower
Rudbeckia hirta	Black-eyed Susan
Solidago rigida	Stiff Goldenrod
Nurse Crop	
Elymus canadensis	Canada Wild Rye

FIGURES
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PHOTOGRAPHS

APPENDIX A